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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,378	04/01/2004	Andrej Astachow	071308.0536	8247
23010	7500	06/28/2005	EXAMINER	
BAKER BOTTS, LLP			HOGAN, JAMES SEAN	
910 LOUISIANA			ART UNIT	
HOUSTON, TX 77002-4995			PAPER NUMBER	
			3752	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/815,378	Applicant(s) ASTACHOW ET AL.	
	Examiner James S. Hogan	Art Unit 3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04/01/2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>04/01/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "arched contour" (claim 9) and "semicircular cross-section" (claim 10) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

Art Unit: 3752

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 5 recites the limitation "nozzle needle" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim, however the Examiner is treating the term to mean, "valve needle".

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4, and 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,467,702 to Lambert et al.

Regarding claim 1, Lambert et al. ('702) discloses a fuel injection valve having a valve body, itself having a tip (12). The tip contains injection orifices (15, 21) and a valve needle (generally 12). A cone (12b) at the tip of the valve needle has groove shaped recesses (54, 52, Figure 2) in the tip. As per claim 2, each recess corresponds at least to a diameter of an injection orifice. As per claims 4 and 10, each recess appears to have a curvilinear and presumably semi-circular cross-section. As per claim 9, as best that can be reasonable understood, each of the recesses of Lambert ('702) feature an arched contour. As per claim 11, the recesses of the injection orifices of Lambert ('702) are adapted to compensate for asymmetrical flow conditions. As per

Art Unit: 3752

claim 12, shown in Figure 10, an embodiment has features a set of recesses (14) with a triangular cross-section.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,467,702 to Lambert et al. in view of U.S. Patent No. 6,811,105 to Kato et al.

7. The basis of claims 3 and 13, claim 1, is outlined above in the rejection via Lambert et al. ('702). Lambert et al ('702) does not show the bottom edge of a stepped-contour recess lying at approximately the same height as the bottom of each orifice. Kato et al, in Figure 5, shows an embodiment with a recess having a stepped contour, whose bottom edge of which lies at the approximate bottom of an orifice (23). It would have been obvious to one skilled in the art at the time the invention was made to have modified the recesses of Lambert et al ('702) with the alignment of Kato et al. ('105) in order to alleviate leaks and pooling in the bottom of a valve body in a fuel injection device.

8. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,467,702 to Lambert et al. in view of U.S patent No. 6,199,539 to Pearlman et al.

Art Unit: 3752

9. The basis of claims 5-7, claim 1, is outlined above in the rejection via Lambert et al. ('702). Lambert et al. ('702) does not teach a guide for reducing rotational movements. Pearlman et al. ('539) teaches a slot and key guide (as per claim 6) in the form of a feather key (32, or 42) that engages in a needle guide (10) of the valve needle in a guide groove (38) in a hollow cylindrical surface in the valve body. As per claim 8, the guide groove of Pearlman et al. ('539) runs longitudinally. It would have been obvious to one skilled in the art at the time the invention was made to have modify the injector of Lambert et al. ('702) with the slot and key guide of Pearlman et al. ('539) in order to minimize rotation of a valve member in the injection device to reduce leaks, and to preserve the alignment of other components.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is as follows:

U.S. Patent No. 4,083,498 to Cavanaugh et al., disclosing a fuel injector

U.S. Patent No. 5,639,029 to Sundholm, disclosing a nozzle

U.S. Patent No. 6,220,528 to Cooke et al., disclosing a fuel injector

U.S. Patent No. 6,758,407 to Lambert et al., disclosing a fuel injector

Japanese Patent No. 10-252,605A to Kimura et al, showing grooved notches on a valve member

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Hogan whose telephone number is (571) 272-4902. The examiner can normally be reached on Mon-Fri, 7:00a-4:00p EST.

Art Unit: 3752

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Scherbel can be reached on (571) 272-4919. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

6/22/05  
JSH

A handwritten signature in black ink, appearing to read 'D. Scherbel', is positioned above the printed name.

**David A. Scherbel**  
**Supervisory Patent Examiner**  
**Group 3700**